

REMARKS

The office action mailed July 20, 2007 has been carefully considered. Within the office action Claims 9, 10, 13, 14, 16-18 and 20 have been rejected. In addition, Claims 11, 12, 15 and 19 have been objected to. The applicants have amended Claims 9, 13 and 17. In addition, the applicants have canceled Claim 15. Additionally, applicants have added new Claims 21 and 22. Reconsideration in view of the above amendments and following remarks is respectfully requested.

Rejection under 35 U.S.C. § 103

Within the office action Claims 9, 13, 16 and 17 stand rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over U.S. Patent No. 6,429,849 to An et al. (hereinafter referred to as "AN") taken with U.S. Published Application No. 2,002/0159336 to Brown (hereinafter referred to as "Brown").

It is admitted in the office action that AN does not teach an electromechanical transducer being configured to receive the drive signal whereby the electromechanical transducer is configured to have a plurality of operational modes, each operational mode from the plurality of operational modes having at least one resonant mode from a plurality of resonant modes. The office action states that Brown however teaches directional transducer and arrays which are configured to receive the drive signal and have a plurality of operational modes, each operational mode from the plurality of operational modes having at least one resonant mode from a plurality of resonant modes. The office action states that it would have therefore been obvious to one skilled in the art at the time of the invention to provide the device or methodology taught by AN in combination with the feature taught by Brown to put in place the means to receive the driver

signal and in turn activate the multi-mode electromechanical transducer through the specific resonant mode identified by the drive signal. The Applicants respectively traverse.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991).

In determining obviousness four factual inquiries must be looked into in regards to determining obviousness. These are determining the scope and content of the prior art; ascertaining the differences between the prior art and the claims in issue; resolving the level of ordinary skill in the pertinent art; and evaluating evidence of secondary consideration. Graham v. John Deere, 383 U.S. 1 (1966); KSR Int'l Co. v. Teleflex, Inc., No 04-1350 (U.S. Apr. 30, 2007) (“ Often, it will be necessary . . . to look into related teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an **apparent reason** to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis **should be made explicit.**”) (emphasis added).

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530 (Fed. Cir. 1983). Thus, when considering the whole prior art reference its entirety,

portions that would lead away from the claimed invention must be considered. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983), See M.P.E.P. 2141.02. Thus, it is improper to combine references where the references teach away from their combination. In re Grasselli, 713 F.2d 731 (Fed. Cir. 1983).

AN merely describes a haptic feedback joystick which has motors which are operated to produce a haptic feedback force. Brown describes a directional electro-acoustic transducer which has a cylindrical or ring-type configuration which is used with a conformal acoustic baffle. Brown goes on to state that the device has desirable directional beam patterns that are nearly frequency independent over a frequency range and the radiation has a characteristic broadband frequency response due to multi-mode excitation.

One skilled in the art would have no motivation to combine AN with Brown to reach the claimed subject matter in Claims 9, 13 and 17. First of all, the Brown reference is purely related to the use of transducers to produce and receive sounds in underwater applications. This is specifically stated in Paragraph 0003 of Brown. In addition, one skilled in the art reading Brown would necessarily require the use of an acoustic baffle having several baffled rings of different resonant frequencies for its device to operate properly. In particular, the conformal acoustic baffle has a defined coverage which can produce the independent beam patterns and beam widths as well as the broadband frequency response. (Brown, Paragraph 0036). In other words, one skilled in the art reading Brown would not have any inkling or have any motivation or apparent reason to use Brown in producing a haptic effect. The proper analysis in showing motivation is that there must be an apparent reason to combine the prior art references under 35 U.S.C. 103. See KSR. In addition, the entire reference and all its teachings must be considered in showing motivation to combine the two references. See W.L. Gore. Here, one skilled in the art reading Brown would realize that Brown stands for the proposition of teaching a transducer which

produces acoustic beam patterns using an acoustic baffle for underwater communications. In other words, Brown does not provide any information which would motivate one skilled in the art to use the teachings of Brown in a device which outputs haptic effects.

Brown is related to the field of endeavor for beam patterns in underwater applications whereas AN utilizes a haptic feedback joystick. Both of these references are in fields which are completely different from one another; and Brown is especially in a different field of endeavor than the claimed subject matter. In re Oetiker, 977 F.2d 1443, 1447 (Fed. Cir. 1992) (“The analogous-art test [of the Graham obviousness analysis] requires that . . . a reference is either in the field of the applicant’s endeavor or is reasonably pertinent to the problem with which the inventor was concerned in order to rely on that reference as a basis for rejection”). In other words, it is necessary to consider the reality of the circumstances or common sense in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor. Id. Brown is not reasonably pertinent to the problem which the applicants are concerned about in making their claimed embodiments. Applicants’ claimed subject matter relates to use of resonant frequencies to provide a haptic feedback with relatively low power consumption. One skilled in the art would realize that Brown’s device is used to produce acoustic patterns in underwater communications applications and therefore would not be utilized in a device which uses haptics to provide the user with touch-based sensory information. Additionally, one skilled in the art would understand that the physics and science involved in the proper design of a directional transducer in underwater applications would be significantly different than what is required in a haptic feedback device. For at least these reasons, one skilled in the art would have absolutely no motivation to use Brown in combination with AN to reach the subject matter recited in claims 9, 13 and 17.

Even if one skilled in the art would combine Brown with AN, one skilled in the art would not establish a *prima facie* case of obviousness because the combination does not teach or suggest all the claimed elements and limitations in Claims 9, 13 and 17. In particular, Claim 9 recites, among other things, that the electromechanical transducer produces the haptic effect wherein the electromechanical transducer operates in at least one resonant mode from a plurality of resonant modes in response to the drive frequency of the drive signal. fact, as stated above with respect to Brown, the beam patterns are independent of the frequency. Thus, the combination of AN and Brown does not teach or suggest all the above elements/limitations. In Accordingly, Claim 17 is patentable over AN and Brown and is condition for allowance.

Claim 17 recites, among other things, a driver configured to receive the haptic feedback signal and output a drive signal having a predetermined drive frequency; and an electro-mechanical transducer being configured to receive the drive signal, the electro-mechanical transducer being operative in a plurality of operational modes, each operational mode from the plurality of operational modes having at least one resonant mode from a plurality of resonant modes, wherein the electro-mechanical transducer outputs a haptic effect in the at least one resonant mode in response to the predetermined drive frequency. The combination of both AN and Brown does not teach or suggest all the above elements/limitations. Accordingly, Claim 17 is patentable over AN and Brown and is condition for allowance.

Regarding Claim 13, the rejection is overcome as the applicants have incorporated the limitations of objected to Claim 15 and to Claim 13. For at least these reasons Claim 13 is now in a condition for allowance.

Regarding the dependent claims, all the dependent claims are dependent on allowable independent claims and are therefore allowable for being dependent on allowable base claims.

New Claims

The applicant has also added Claims 21 and 22 in the present application. The applicants submit that Claims 21 and 22 are fully supported by the specification and do not contain any new matter. Allowance of new Claims 21 and 22 is respectfully requested.

Conclusion


It is believed that this reply places the above-identified patent application into condition for allowance. Early favorable consideration of this reply is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,

Dated: 10/19/07


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